AGILENT TECHNOLOGIES, INC.
Legal Department, DL429
Intellectual Property Administration
P. O. Box 7599
Loveland, Colorado 80537-0599

III. CLAIM AMENDMENTS

1. (Currently Amended) A method for detection of a target nucleic acid sequence ~~(1A)~~ in a mixture of different nucleic acids ~~(5)~~ having additional binding sites ~~(10)~~, the method comprising ~~the subsequent steps~~:

   A) hybridizing the target nucleic acid sequence with a probe ~~(15)~~ in liquid phase, the probe having a first label ~~(20)~~,

   A1) hybridizing the additional binding sites with single stranded nucleic acids having random primary sequences in liquid phase,

   B) separating the different nucleic acids ~~(1A, 5)~~,

   C) detecting the target nucleic acid ~~(1A)~~ by using the labeled probe ~~(15)~~.

2. (Cancelled)

3. (Currently Amended) Method according to claim ~~2~~1,

- wherein short nucleic acids having a length of 6 to 12 nucleotides are provided in ~~step~~ A1) for hybridizing.

4. (Currently Amended) Method according to claim ~~2~~ 1 ~~or 3~~,

- wherein hybridizing in ~~step~~ A1) is carried out at roughly room temperature, and
- hybridizing in ~~step~~ A) is carried out at a temperature between 56°C to 72°C.

5. (Currently Amended) M~~m~~ethod according to claim ~~2~~ 1 ~~or 3~~,

- wherein a nucleic acid with a length of at least 10-times the length of the single stranded nucleic acids ~~(25)~~ with random primary sequence is used as a probe ~~(15)~~,
- wherein ~~step~~ A1) and ~~step~~ A) are carried out simultaneously.

6. (Currently Amended) Method according to claim ~~3~~ 2 ~~or any of the claims 4 or 5~~,

- wherein in ~~step~~ A1) nucleic acids ~~(25)~~ labeled with a second label ~~(30)~~ are used for hybridizing,

- the second label ~~(30)~~ being different from the first label ~~(20)~~.

7. (Currently Amended) Method according to claim ~~3~~ 2 ~~or any of the claims 4 or 5~~,

- wherein the nucleic acids ~~(25)~~ used for hybridizing in ~~step~~ A1) are subsequently labeled with a second label ~~(30)~~ after ~~step~~ A1),

- the second label being different from the first label.

8. (Currently Amended) Method according to claim_1 ~~or any of the claims 2 to 7~~, comprising at least one of:

- ~~wherein~~ prior to ~~step~~ A) the mixture of different nucleic acids is denatured in a ~~step~~ A2);~~,~~

- in A) a nucleic acid is used as a probe, having a stretch of 18 to 25 nucleotides being able to hybridize with the target nucleic acid sequence, this stretch having at least 80% sequence homology to the complementary sequence of the target nucleic acid sequence.

9. (Cancelled)

10. (Currently Amended) Method according to claim 1 ~~or any of the claims 2 to 9~~, comprising at least one of:

- ~~wherein~~ in ~~step~~ B) the nucleic acids are separated according to their mass by using a gel electrophorese;~~,~~

- in B) a microfluidic chip having capillaries suitable for nucleic acid electrophorese is used for separation.

11. (Cancelled)

12. (Currently Amended) Method according to claim 1 ~~or any of the claims 2 to 11~~,

- wherein a first and if present a second label is used, each being selected from the following group:

- radioactive labels, fluorescent markers, chemoluminescence, bioluminescence, magnetic labels and antigen labels.

13. (Original) Method according to claim 12,

- wherein fluorescent markers are used as the first and if present second label,

- the fluorescent markers of the first and second label emitting radiation of different wavelengths.

14. (Currently Amended) Method according to claim 13,

- wherein in ~~step~~ C) the amount and the size of the hybrid strand of the target nucleic acid ~~(1A)~~ and the probe ~~(15)~~ is determined via the first label ~~(20)~~ and in case the second label ~~(30)~~ is present, the amount of the other different nucleic acids ~~(5)~~ in the mixture is determined via the second label ~~(30)~~,

- using a spectrometer for the detection of both labels.

15. (Currently Amended) A kit for performing a separation method according to ~~claim 2 or any of the claims 3 to 7~~claim 1, comprising:

- a probe ~~(15)~~ labeled with a first label ~~(20)~~, able to hybridize with a target nucleic acid sequence ~~(1A)~~,

- oligonucleotides ~~(25)~~ with a randomized primary sequence for hybridizing to the additional binding sites ~~(10)~~ present in the mixture of nucleic acids,

- a mass separator ~~means~~ for ~~carrying out the~~ separation~~g~~ ~~of~~ nucleic acids according to their mass.

16. (Currently Amended) Kit according to ~~the previous~~ claim 15, comprising at least one of:

- ~~wherein~~ the mass separator ~~means for carrying out a separation of the nucleic acids include~~ comprises a microfluidic chip; ~~,~~

- a second label for labeling the oligonucleotides with randomized primary sequence.

17. (Cancelled)